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United States Patent [19]

Miyaguchi et al.

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[54] **MASSAGING DEVICE**

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[30] **Foreign Application Priority Data**

Apr. 30, 1997 [JP] Japan 9-113102

[51] **Int. Cl.**[7] **A47C 1/032**; A61H 15/00

[52] **U.S. Cl.** **297/362.13**; 297/217.3; 297/327; 601/49

[58] **Field of Search** 297/27, 28, 217.3, 297/284.5, 325, 326, 327, 328, 362.13; 601/49

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[57] **ABSTRACT**

A massaging device capable of easily achieving a reclining operation. The massaging device of the present invention includes a base supporting a seat and a backrest rotatable about a pivot axis about a limited angular range. Mounted within the backrest is a massaging mechanism which includes an applicator giving a massaging action to a user. A pair of armrests extend on opposite sides of the seat and the backrest. The massaging device includes a reclining mechanism for selectively holding the backrest at a position about the pivot axis within the angular range and permitting the bracket to rotate about the pivot axis within the angular range. A handle, which is connected to actuate the reclining mechanism for permitting the backrest to rotate, is mounted on a lower surface of one of the armrests at a location upwardly of the seat. With this arrangement, the handle can be within a reach of the user s fingers even the backrest is fully inclined to a leaned position, and therefore could be easily manipulated by the user. Also, since the handle is mounted on the lower surface of the armrest, it is free from being inadvertently actuated when the handle is not intended to be operated.

6 Claims, 5 Drawing Sheets

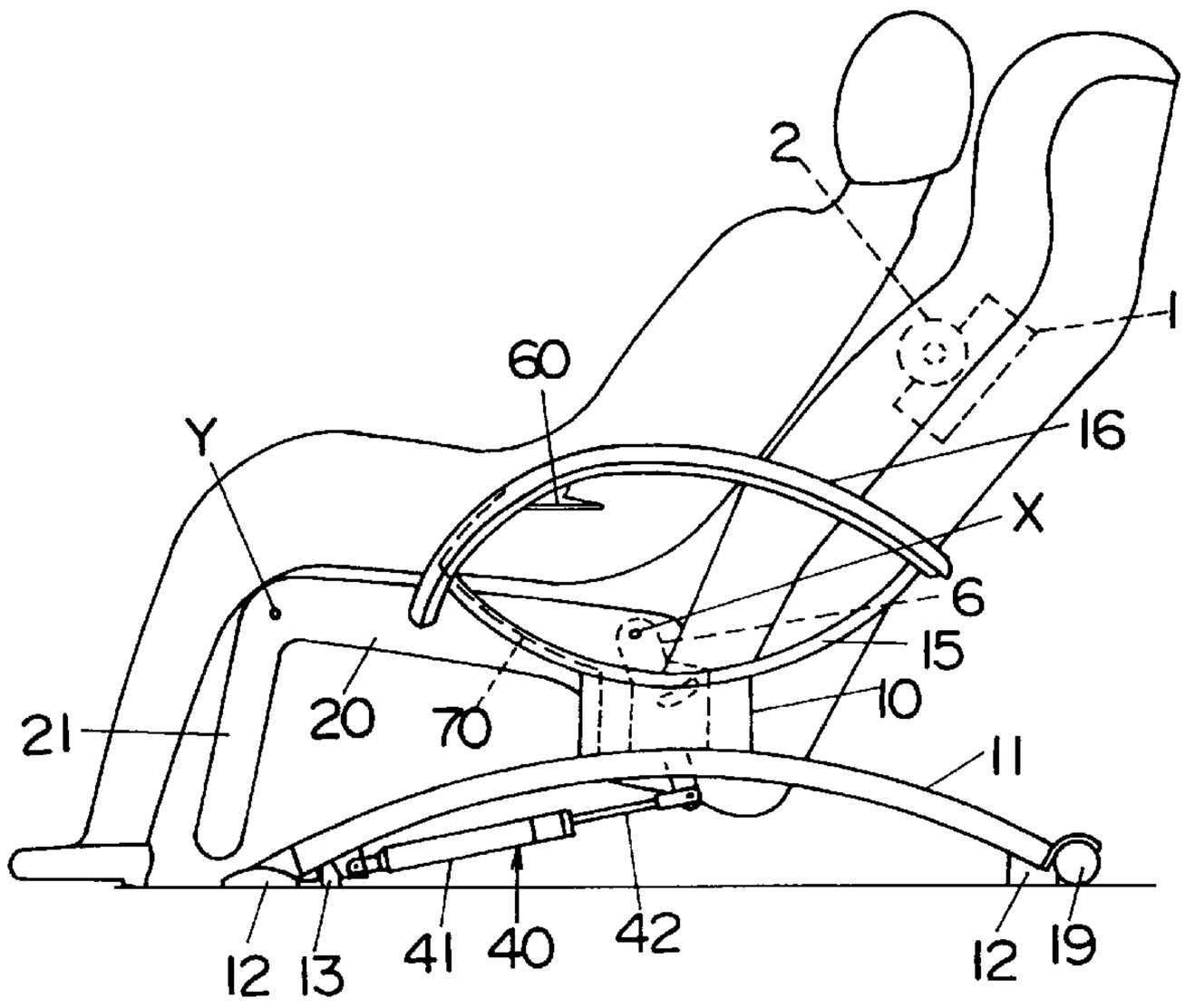
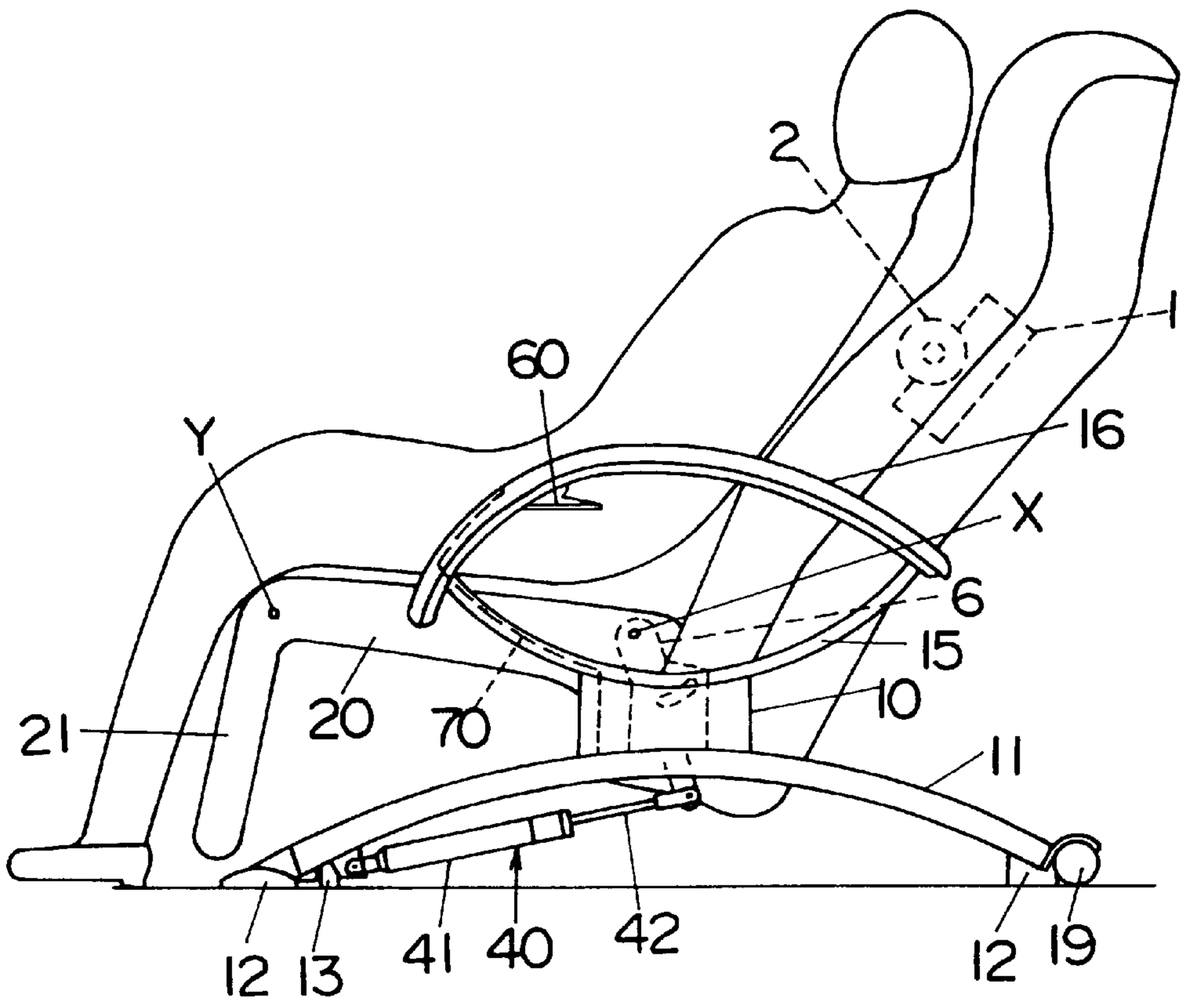


FIG. 1



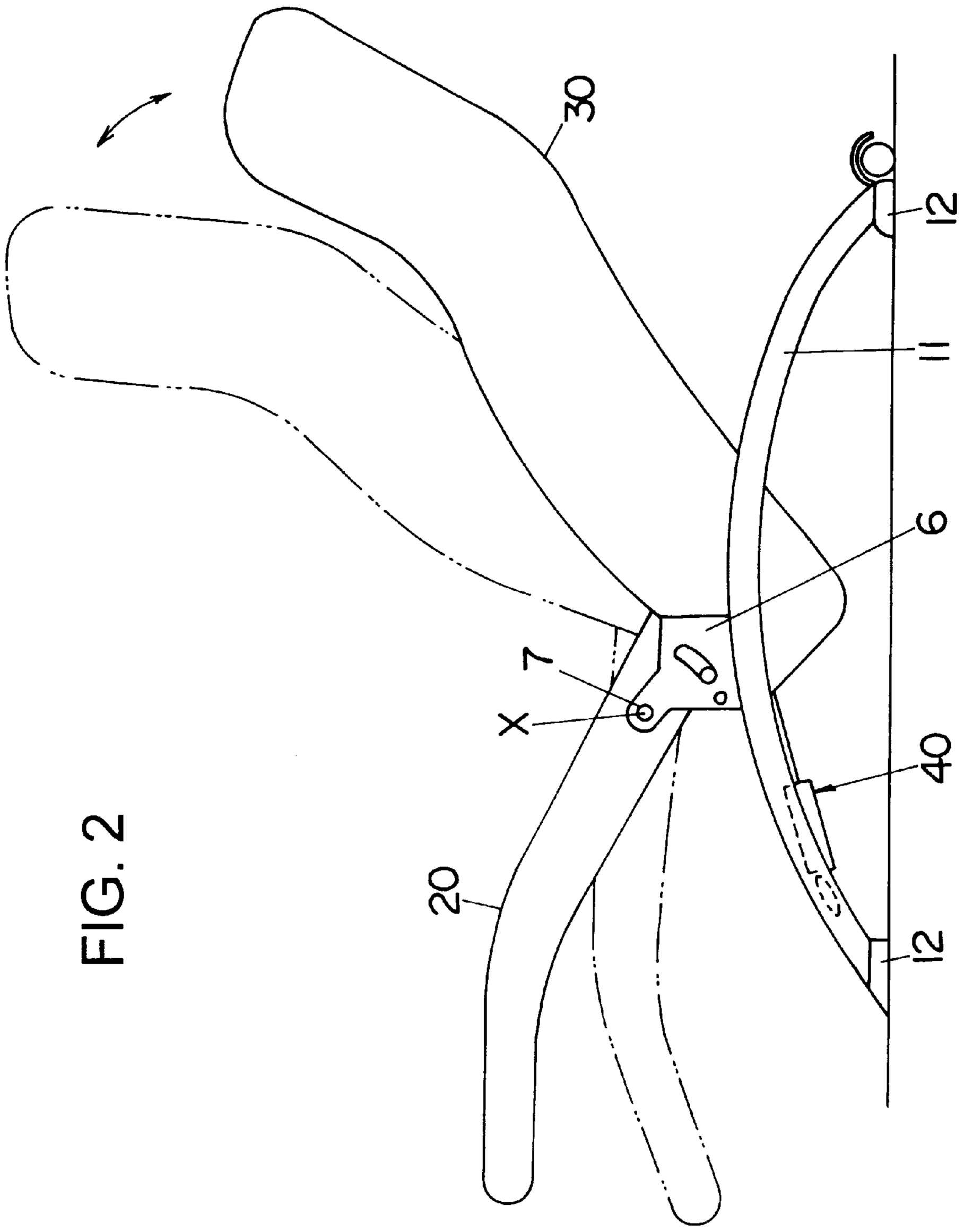


FIG. 2

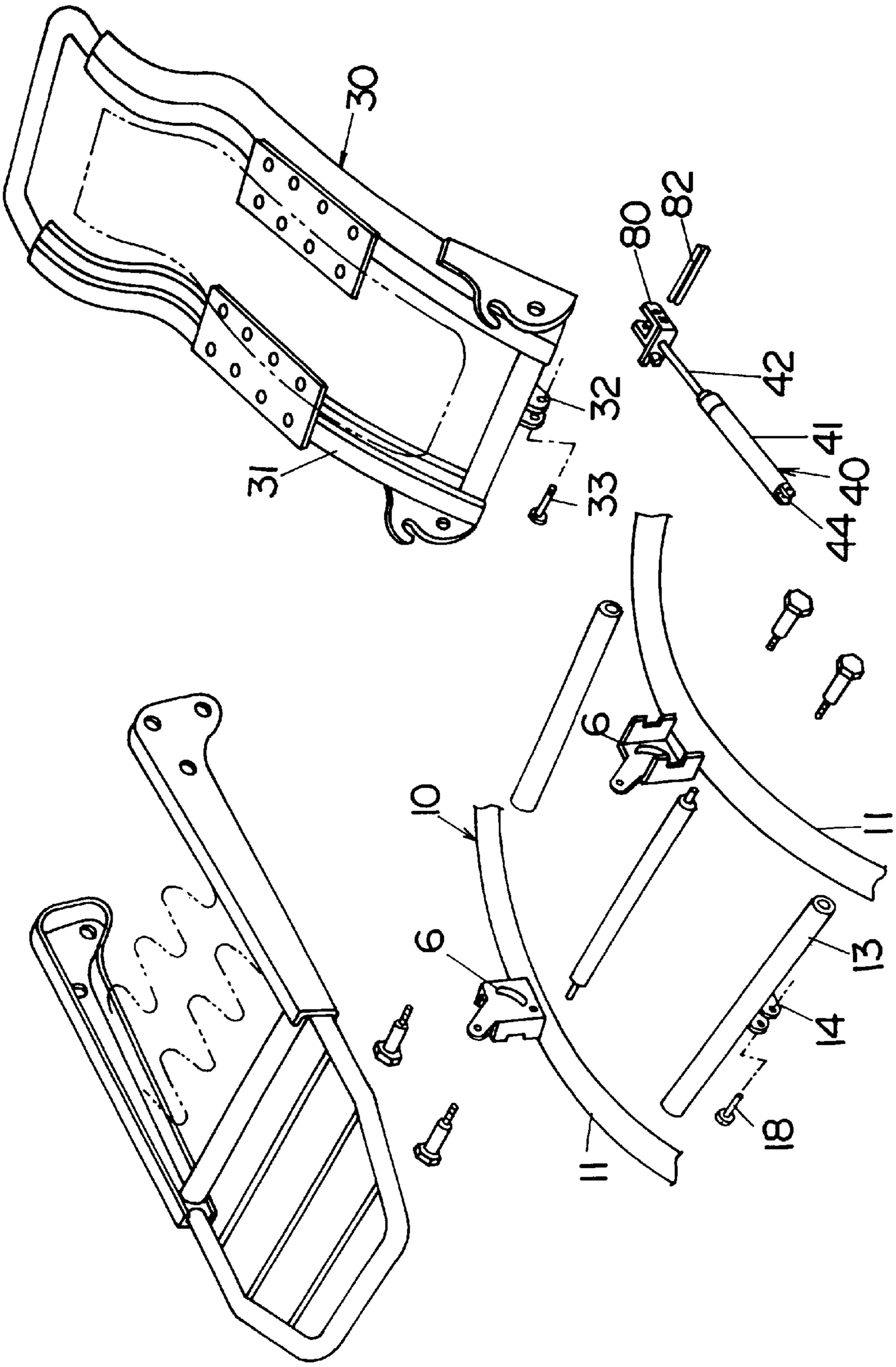


FIG. 3

FIG. 4

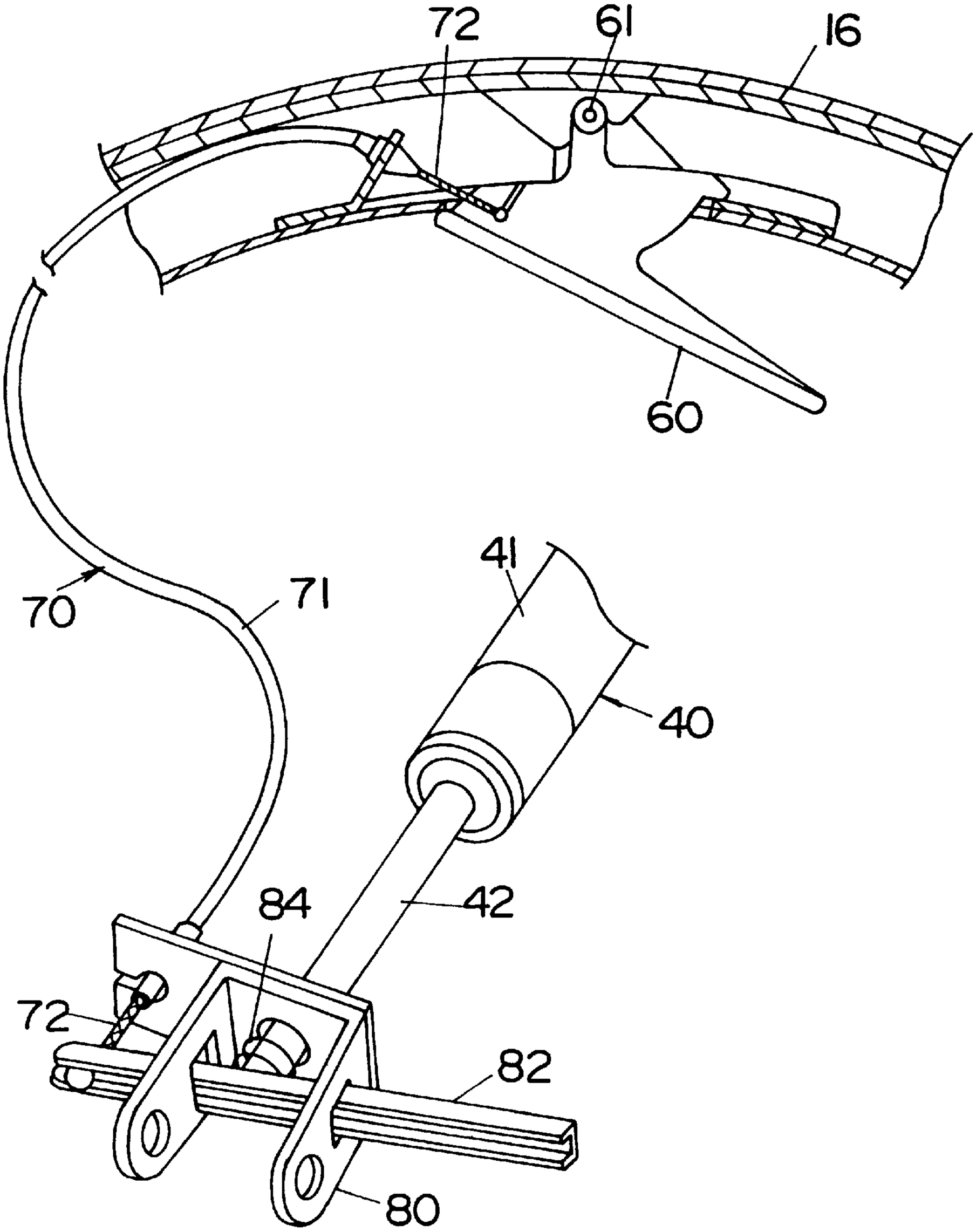
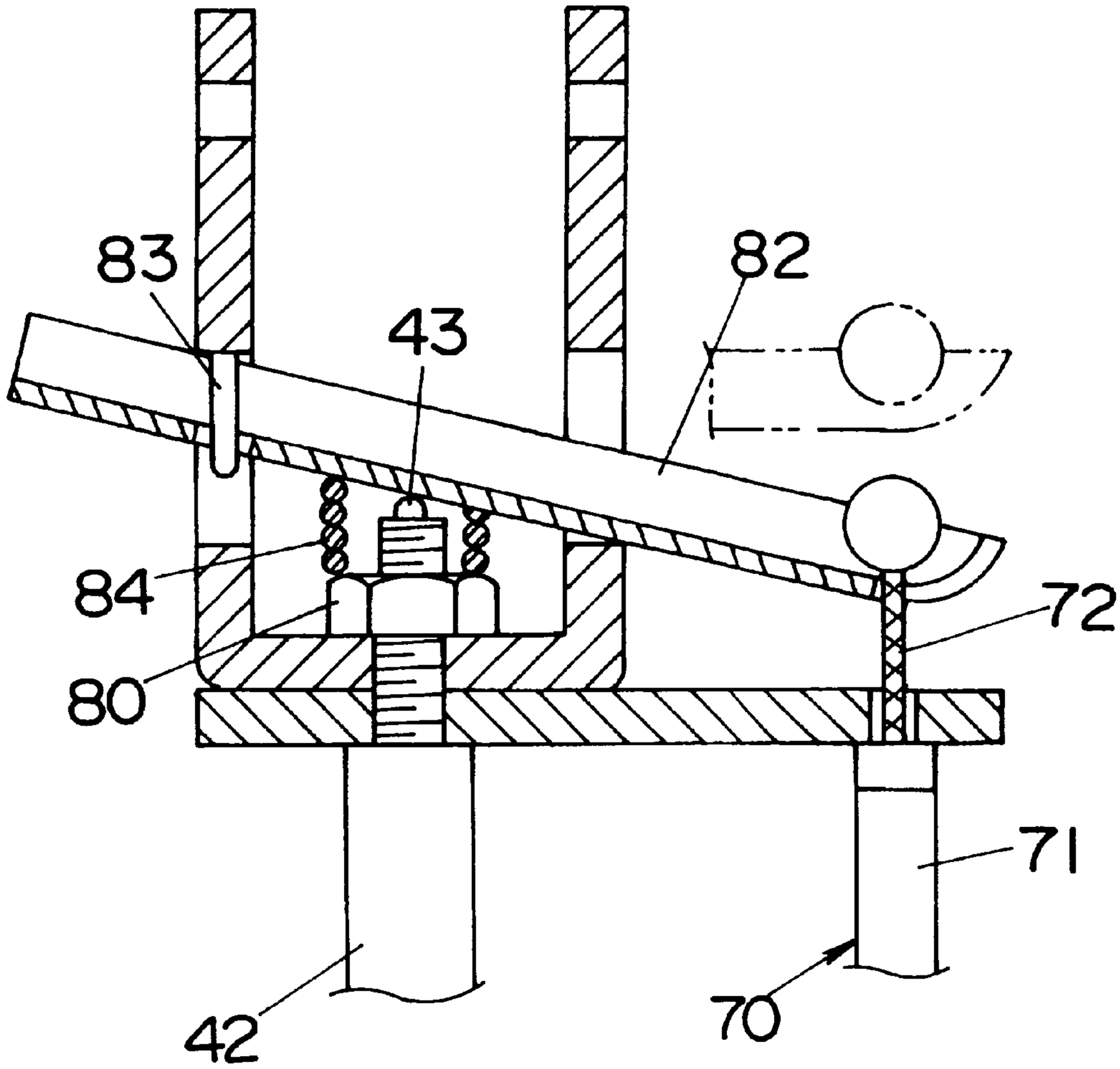


FIG. 5



MASSAGING DEVICE

TECHNICAL FIELDS

The present invention relates to a massaging device of a chair-type with a reclining backrest which incorporates a massaging mechanism of producing a massaging action.

BACKGROUND ART

For a massaging device with a backrest incorporating a massaging mechanism, a user can enjoy being massaged in a more relaxed manner with the backrest being reclined. Thus, the backrest is pivotally supported to a base to be rotatable about a pivot axis within a limited angular range and is caused by a reclining mechanism to freely rotate to a desired angular position and is held thereat. The reclining mechanism includes a gas-filled cylinder, an extensible plunger extending from the cylinder, and an actuator provided at one end of the plunger. One of the cylinder and the plunger is connected to a base, while the other of the cylinder and the plunger is pivotally connected to a lower end of the backrest at a point spaced from the pivot axis. The actuator is provided to open and close an internal valve of the cylinder for permitting a gas to move within the cylinder upon being actuated and therefore permitting the plunger to move relative to the cylinder, thereby causing the backrest to rotate about the pivot axis in correspondence to a load applied to the backrest. The actuator is connected to be actuated by operating a handle mounted on the base at a position below the seat. Due to the structural restriction that the actuator is provided on the side of the plunger, the handle for moving the actuator is located on a portion of the base below the seat and the backrest and adjacent to the reclining mechanism. Although thus located handle can be reached by a user's finger when the backrest is in an upright position, it is difficult to be reached by the fingers when the backrest is in a leaned position.

DISCLOSURE OF THE INVENTION

The present invention has been accomplished in view of the above insufficiency and has an object of providing a massaging device which is capable of easily achieving a reclining operation. The massaging device in accordance with the present invention includes a base supporting a seat and a backrest rotatable about a pivot axis about a limited angular range. Mounted within the backrest is a massaging mechanism which includes an applicator giving a massaging action to a user. A pair of armrests extend on opposite sides of the seat and the backrest. The massaging device includes a reclining mechanism for selectively holding the backrest at a position about the pivot axis within the angular range and permitting the bracket to rotate about the pivot axis within the angular range. A handle, which is connected to actuate the reclining mechanism for permitting the backrest to rotate, is mounted on a lower surface of one of the armrests at a location upwardly of the seat. With this arrangement, the handle can be within a reach of the user's fingers even the backrest is fully inclined to a leaned position, and therefore could be easily manipulated by the user. Also, since the handle is mounted on the lower surface of the armrest, it is free from being inadvertently actuated when the handle is not intended to be operated.

Preferably, the seat is fixed to the backrest to be rotatable about the pivot axis together with the backrest. The handle is located upwardly of thus rotatable seat irrespective of any angular position of the backrest permitted to rotate about the pivot axis.

Each of the armrests is of a hollow structure and shaped into an upwardly convexed arcuate configuration and is connected at opposite arcuate ends thereof to a hollow support member fixed to the base. The reclining mechanism comprises a cylinder, an extensible plunger extending from the cylinder, and an actuator projecting from said plunger to permit the plunger to extend and retract from the cylinder when being pressed and otherwise lock the plunger. The cylinder is connected to the base at one end opposite of the plunger, while the plunger is connected at a distal end thereof to a lower end of the backrest at a point spaced from the pivot axis so as to rotate the backrest about the pivot axis in accordance with varying extending length of the plunger from the cylinder. The handle is connected through a cable to the actuator in order to permit the plunger to move relative to the cylinder by operating the handle. The cable is routed from the handle through a portion of the armrest, and a portion of the support member and is led to the lower end of the backrest for activating the actuator. In this fashion, the cable can be routed by utilization of the armrest and the supporting member to the actuator of the reclining mechanism below the backrest, enabling to connect the handle on the armrest to the reclining mechanism without exposing the cable on the side of the chair.

The support member is also of a hollow structure shaped into a downwardly convexed arcuate configuration and is connected at opposite arcuate ends thereof to the opposite arcuate ends of the armrest.

These and other advantageous features of the present invention will become apparent from the following detailed description of the preferred embodiments when taken in conjunction with the attached drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a side view of a massaging device in accordance with one embodiment of the present invention;

FIG. **2** is a schematic view illustrating a reclining operation of a backrest of the above device;

FIG. **3** is an exploded perspective view illustrating an internal structure of the above massaging device;

FIG. **4** is a schematic view illustrating a connection between a reclining mechanism of the above massaging device and a handle; and

FIG. **5** is a partially sectional view illustrating a connection of the reclining mechanism to the backrest.

BEST MODE FOR CARRYING OUT THE INVENTION

FIG. **1** illustrates a chair-type massaging device in accordance with a preferred embodiment of the present invention, which has chair's backrest **30** mounting therein a massaging mechanism **1** with an applicator **2**. The massaging device includes a base **10** with a pair of legs **11**, and a combination of a seat **20** and the backrest **30** mounted to the base **10**. The seat **20** and the backrest **30** is integrally secured by a member **6** and is pivotally supported to the base **10** by means of a pin **7** so as to be rotatable about a pivot axis X within a predetermined angular range. Each of the legs **11** is shaped into an upwardly convexed arcuate configuration and is provided at its opposite ends with foot stands **12** and is provided at its rear end with a wheel **19** for transportation of the device. The legs **11** are connected at their front ends by a crossbar **13** which is connected to the backrest **30** by means of a reclining mechanism **40**. The reclining mechanism **40** comprises a gas-filled cylinder **41** and an extensible

plunger **42** extending from the cylinder **41**. The cylinder **41** has its one end connected to the crossbar **13** at the front end of the legs **11**, while the plunger **42** has its one end connected to the lower end of the backrest **30**. The reclining mechanism **40** includes an actuator **43** which, upon being actuated, opens an internal valve of the cylinder **41** to permit a filled gas to move within the cylinder **41** and therefore permit the plunger **42** to move relative to the cylinder **41**. That is, the plunger **42** has a piston having the valve at its one end within the cylinder so that the gas within the cylinder will flow through the valve of the piston to move the plunger **42** relative to the cylinder **41**. Thus, the backrest **30** can be angled in accordance with a load applied to the backrest so that the backrest **30** can rotate together with the seat **20** in a reclining manner, as shown in FIG. **2**. When no load is applied to the backrest **30**, the backrest **30** is urged to rotate towards a raised position by the gas pressure in the cylinder **41**. When a load greater than the gas pressure is applied, the backrest **30** is caused to lean backward slowly against the gas pressure. Projecting from the front end of the seat **20** is a foot stand **21** which is rotatable about a pivot axis Y.

Secured to the seat **20** on opposite sides thereof are supporting members **15** of arcuate configuration which support armrests **16** of upwardly convexed arcuate configuration. The supporting member **15**, which is of downwardly convexed arcuate configuration and of a hollow structure, is connected at its front and rear ends to front and rear ends of the armrest **16**. The armrest **16** is also of a hollow structure and communicates with the interior of the supporting member **15** at the connection between the front end of the armrest and the supporting member. Provided on the lower surface of the center of the armrest **16** is a lever-shaped handle **60** to which one end of a cable **70** is connected. The cable extends through the armrest **16** and the supporting member **15** to be connected to operate the actuator **43** of the reclining mechanism **40** below the backrest **30**. For this purpose, the cable **70** extends out of a center opening of the supporting member **15** towards a portion below the backrest **30**.

As shown in FIG. **4**, the cable **70** is composed of a sheath **71** and a core wire **72**. The sheath **71** is secured at its opposite ends to the armrest **16** and a bracket **80** fixed to the end of the plunger **42**. The handle **60** is pivotally mounted to the armrest **16** by means of a pin **61** and is connected to one end of core wire **72** at a position offset from the pin **61**. The other end of the core wire **72** is connected to a lever **82** supported to the bracket **80**. As shown in FIG. **3**, the bracket **80** is pivotally supported by means of a pin **33** to a member **32** projecting at the lower end of a frame **31** of the backrest **30**, connecting the plunger **42** to the backrest **30**. The cylinder **41** is connected by means of a pin **18** to a member **14** of the crossbar **13** bridging between the front ends of the legs **11**. As shown in FIGS. **4** and **5**, the lever **82** is pivoted at its one end to the bracket **80** by means of a pin **83** in an engageable relation to the actuator **43** projecting at the end of the plunger **42** so that the actuator **43** is pressed as the lever is moved in one direction with the core wire **72** being pulled by operation of the handle **60** and that the actuator **43** is released as the lever **82** is urged by a spring **84** disposed between the bracket **80** and the lever **82** upon release of the handle **60**. When the actuator **43** is pressed by operation of the handle **60**, the internal valve of the cylinder **41** is opened to permit the flow of the filled-gas, thereby enabling the plunger **42** to move relative to the cylinder **41** for shifting the backrest **30** to a desired angular position. Upon release of the handle **60**, the actuator **43** is returned to a position of closing the internal valve, disabling the movement of the plunger **42** and therefore keeping the backrest **30** at the instant position.

As described in the above, because the handle **60** responsible for operating the reclining mechanism **40** to recline the backrest **30** together with the seat **20** is disposed above the seat as well as on the lower surface of the armrest **16**, the handle **60** can be located well within a reach of the fingers of the user irrespective of the position of the backrest **30**, thereby facilitating the reclining operation in a comfortable manner.

The massaging mechanism **1** incorporated in the backrest **30** of the chair-type massaging device may be that disclosed in Japanese Patent Laid-Open Publication No. 63-145656 in which a pair of ring members are provided around a drive shaft in an eccentric relation as well as in an inclined relation to the axis of the drive shaft, and a roller-shaped applicator is provided at an end of an arm projecting from a freely rotatable member of each ring member. In this mechanism, the applicator gives a kneading massage action to the user's body in response to the rotation of the drive shaft by a motor, while running the whole massaging mechanism along the backrest **30** can select the portion being massaged or give a rubbing massage action.

We claim:

1. A massaging device which comprises:

a base located beneath and supporting a seat and a backrest, said backrest being pivotally supported to said base about a pivot axis to be rotatable about said pivot axis within an angular range;

a massaging mechanism with an applicator, said massager being disposed within said backrest in order that said applicator applies a massaging action to the user;

a pair of armrests supported by said base to extend on opposite sides of said seat and said backrest;

a reclining mechanism having a first end always connected to said base beneath said seat and a second end connected directly to said backrest to selectively hold said backrest at a position about said pivot axis within said angular range and permit said backrest to rotate about said pivot axis within said angular range; and

a handle connected to actuate said reclining mechanism for permitting said backrest to rotate, wherein said handle is mounted on a lower surface of one of said armrests at a location upwardly of said seat.

2. The massaging device as set forth in claim **1**, wherein said seat is fixedly connected to said backrest to be rotatable about said pivot axis together with said backrest.

3. The massaging device as set fortn in claim **2**, wherein said position of said handle is selected to be upwardly of said seat in any angular position of said backrest permitted to rotate about said pivot axis.

4. The massaging device as set forth in claim **2**, wherein each of said armrests is of a hollow structure and shaped into an upwardly convexed arcuate configuration and is connected at opposite arcuate ends thereof to a hollow support member fixed to said base,

said reclining mechanism comprising a cylinder, an extensible plunger extending from said cylinder, and an actuator projecting from said plunger to permit said plunger to extend and retract from said cylinder when being pressed and otherwise lock said plunger;

said cylinder being connected to said base at one end opposite of said plunger;

said plunger being connected at a distal end thereof to a lower end of said backrest at a point spaced from said pivot axis so as to rotate said backrest about said pivot axis in accordance with varying extending length of said plunger from said cylinder;

said handle being connected through a cable to said actuator in order to permit said plunger to move relative to said cylinder by operating said handle, said cable being routed from said handle through a portion of said armrest, and a portion of said support member and led to the lower end of said backrest for activating said actuator.

5. The massaging device as set forth in claim **4**, wherein said support member is of a hollow structure shaped into a downwardly convex arcuate configuration and is connected at opposite arcuate ends thereof to said opposite arcuate ends of said armrest.

6. The massaging device as set forth in claim **4**, wherein said base includes a pair of legs extending generally horizontally on opposite sides of said seat, said legs having front ends which are connected by a transverse beam at a portion below a front end of said seat, said cylinder being connected to said transverse beam.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 6,065,806

DATED : May 23, 2000

INVENTOR(S) : MIYAGUCHI et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Item [73], please delete "Matsushita Electric Works, Ltd., Saitama, Japan"

and insert therefor, -- **Matsushita Electric Works, Ltd., Osaka, Japan; TS Tech Co., Ltd., Saitama, Japan** --

Signed and Sealed this

Twenty-fourth Day of April, 2001

Attest:

Attesting Officer

Nicholas P. Godici

NICHOLAS P. GODICI

Acting Director of the United States Patent and Trademark Office